

more coarsely sculptured than in *fecundus*; vestiture at or a little behind midpoint of pronotum often transverse or transverso-oblique in direction. Scutellum densely clothed with white scales and more often impressed than in *fecundus*. Otherwise as in *fecundus*.

*Type locality*.—Wilmington, N. C. July 13, 1942. ACL railroad track. GWRD-47B.

Type and 115 paratypes (all from Wilmington and vicinity), No. 58153, United States National Museum.

Specimens have been examined from the following places in NORTH CAROLINA: Cape Fear, Wrightsboro, Wilmington, Castle Hayne, Rocky Point, St. Helena, Burgaw, Jacksonville, Kellum, Atkinson, Ivanhoe, Bladenboro, Lumberton, Hope Mills, Vander, Warsaw, Goldsboro, Kinston, Dover, and Greensboro.

This race is exceedingly close to *fecundus*, and no uniformly reliable way of separating them is known; and single specimens or small lots of both races can sometimes be identified only by locality. Statistical study of long series, however, indicates that *fecundus* and *imitator* are separate entities, even though they merge more or less imperceptibly in all characters and character combinations. Possibly *imitator* may be something in the nature of a recent mutation of *fecundus* but, if so, there still remains the need, from a taxonomic stand-

point, of recording those differences that do exist.

In the many hundreds of specimens of each race examined, the single feature which has proved most useful as a distinguishing mark (though far from an invariable one) is found in the direction taken by the vestiture on and bordering the median line of the pronotum. In most specimens of *fecundus* the vestiture along this line points either longitudinally or slightly mesad (Fig. 13), though in a small area usually located just posterior to the midpoint of the pronotum and which may be termed the "area of confusion" (Fig. 19), there is occasionally a more or less marked dearrangement of the vestiture, in which case some of the setae and scales are more obliquely, or even transversely or backwardly, directed. In general, however, the vestiture along the median line of the pronotum in *fecundus* points longitudinally or nearly so. In *imitator*, especially in medium- and large-sized specimens, the vestiture in the area of confusion is oftener transverse in direction, or more nearly transverse than in *fecundus*; and the number of setae and scales having a transverse or obliquely transverse direction is usually greater than in *fecundus* (Fig. 14). The somewhat coarser pronotal sculpture of *imitator* is also a useful character in series.

HERPETOLOGY.—*A new musk turtle from Southeastern United States.*<sup>1</sup> HOBART M. SMITH and BRYAN P. GLASS, Agricultural and Mechanical College of Texas, College Station, Tex. (Communicated by Herbert Friedmann.)

Included in a small collection of reptiles and amphibians from Mississippi, kindly donated to the Texas Cooperative Wildlife Collections (herein indicated as TCWC) at the Agricultural and Mechanical College of Texas by Helmut K. Buechner, is an adult *Sternotherus* remarkable as the second known example of a species anticipated as long ago as 1895 by Samuel Rhoads, but neglected and confused with *S. minor* by subsequent authorities.

For the use of comparative material without which our study could have come to no satisfactory conclusion, we are indebted to Dr. Doris M. Cochran, of the

U. S. National Museum, and Dr. Cornelia Smith, of Baylor University. We are deeply grateful to Helmut Buechner for his kindness in providing the Mississippi material.

*Sternotherus peltifer*,<sup>2</sup> n. sp.

STRIPED MUSK TURTLE

*Holotype*.—TCWC No. 1205, male, from Bassfield, Jefferson Davis County, 30 miles west of Hattiesburg, Miss., collected on June 4, 1946, by Helmut K. Buechner.

*Diagnosis*.—A member of the genus *Sternotherus* with a single sharply defined median

<sup>2</sup> From Latin: *pelta*, a very short buckler or target in form of a half-moon; *fer*, bearing. Used in reference to the small, slender bridge scutes.

<sup>1</sup> Received October 3, 1946.

keel, gular plates greatly reduced, and two mental barbels. Similar in these respects to *S. carinatus* from which it differs as follows: (1) axillary and inguinal plates reduced in size, much longer than broad; (2) second, third, and fourth vertebral shields broader than long; (3) humerals short and broad; and (4) carapace relatively rounded in cross section. Most closely related to *S. minor*, from which it differs in lacking lateral keels. Unique in having distinct stripes on head and neck and a pair of gular vestiges.

*Description of holotype.*—Carapace smoothly and symmetrically oval in dorsal profile, width about 0.75 of length, depth slightly greater than 0.33 of length; rear edge of carapace very feebly flared, not notched medially. Plastron narrow, anterior lobe slightly wider and shorter than posterior lobe (along median line), bridge slightly less than 0.25 of total plastral length. Head moderately large; upper jaw very feebly and lower jaw rather strongly hooked; numerous longitudinal rows of fine papillae on neck; two chin barbels. Tail extending beyond carapace for more than half its length, very slightly unguiculate, tip conical; numerous short fine papillae on tail, dispersed both irregularly and in rows. Rasping organ small, compact, each section oval in outline, very well defined.

Dorsal plates relatively loosely imbricate (as compared with, e.g., *S. odoratus*); first vertebral long and narrow, triangular, apex truncate, greatest width somewhat less than half greatest length; second, third and fourth vertebrals diamond-shaped to pentagonal, deeply overlapping, each a little wider than long; fifth vertebral pentagonal, only slightly longer than broad; costals four, typical, anterior longest, posterior smallest; nuchal very small; marginals eleven on each side, posterior two on each side more elevated than others, none less than about half as high as long, none serrate although posterior edge of each of rear four scutes on either side slightly overhanging anterior edge of succeeding scute. Median plastral sutures extensively and other plastral sutures narrowly bordered by incompletely cornified epidermis. Gular shields vestigial, paired; humerals short, broad; pectorals quadrangular, their median suture more than half as long as their lateral margin. Abdominals quadrangular, the lateral portion extending past the bor-

der of the plastron to form the greater part of the bridges. Axillaries and inguinals much reduced, a little more than three times as long as wide, latter twice size of former, together barely serving to separate lateral margins of abdominals from contact with marginals. Femorals and anals quadrangular. Posterior margin of plastron broadly emarginate, sides of emargination forming an angle of about  $105^\circ$ , width about half greatest width of posterior lobe; anterior margin of plastron truncate and slightly indented.

Dorsal scutes dark olive-brown, their free margins outlined with black; obscure, short, dark streaks radiating from posteromedial corner and evident chiefly toward the margin of each scute. Plastral shields yellow, feebly edged with brown; naked skin of plastron whitish. Neck and posterior half of head dark gray-brown, with bright yellow stripes above and on sides averaging 1.5 mm in width (same as dark interspaces), yellow below and with large dark patches. Frontal region with indistinct round dark spots; a few irregular dark spots on anterior temporal region; rostrum and upper jaw clouded, lighter toward lips; lower jaw with longitudinal brown streaks. Superior and anterior surfaces of forelegs dark and with distinct, irregular, longitudinal light streaks; hind legs dark, feebly marked; tail likewise irregularly marked, more clearly toward tip.

*Measurements (in mm).*—Carapace length 85.7; carapace width (greatest) 63.8; plastral length (median line) 57.9; maximum width anterior lobe 34.2; maximum width posterior lobe 29.6; length anterior lobe 18.7; length posterior lobe 21.9; bridge length 13.1; width of posterior plastral notch 15; depth of notch 4.1; median pectoral suture 11.1; lateral pectoral margin, 17; abdominal width 24.2; inguinal  $3 \times 9.5$ ; axillary  $1.9 \times 7.8$ ; humerals  $6.2 \times 12.2$ ; second vertebral 22.6 (width)  $\times$  21.2 (length, maximum); third vertebral  $23.3 \times 20.1$ ; fourth vertebral  $20.8 \times 18.7$ ; fifth vertebral  $18.8 \times 19.5$ .

*Discussion.*—The species represented by the present specimen is somewhat intermediate in some respects between *S. carinatus* and *S. minor*. It is, however, abundantly different from both and possesses a few distinctive characters of its own. No other described species of *Sternotherus* is known to have the peculiarly marked head and neck, with many well-defined stripes.

However Rhoads (Proc. Acad. Nat. Sci. Philadelphia 49: 384-386. 1895) describes a specimen from the Emory River at Harriman, Roan County, Tenn., with an apparently identical pattern and similar structure; almost beyond question Rhoads' specimen is referable to *S. peltifer*. If properly allocated, it indicates a considerable range for the species, from eastern Tennessee to southern Mississippi. The eastern and western limits of the range are problematical.

It is noteworthy that Stejneger (Proc. U. S. Nat. Mus. 62 (art. 6): 2-3. 1923) and Pope (Turtles U. S., Canada: 48. 1939) allocate Rhoads' specimen with *S. minor*. The latter species, however, possesses three keels and has a spotted head. Rhoads describes his specimen as being "strongly keeled," and fails to mention lateral keels; likewise he describes stripes on the head. These features are reproduced in the Mississippi specimen.

Perhaps of considerable interest is the fact that *S. peltifer* shares its range with only one other of the genus: *S. odoratus*. It is bordered on the east by *S. minor*, on the west by *S. carinatus*, while *S. odoratus* overlaps the ranges of all three. These facts suggest that *S. peltifer* belongs to the section of the genus including *S. minor* and *S. carinatus*. It is of interest to speculate that these three forms may even be subspecies; if not they appear at least to be members of a single artenkreis.

The probable relationship of *S. peltifer*, *S. minor*, and *S. carinatus* is indicated by more than geographic ranges. They are all of similar superficial appearance (witness the frequent records by early authors of *S. minor* under the name of *S. carinatus*), and of much the same body shape and color. Rhoads' reference of one specimen of *S. peltifer* to *S. carinatus*, while Stejneger and Pope refer the same to *S. minor*, is evidence enough that the several species are confusingly alike. Differences between them are as follows:

*S. carinatus*: axillary and inguinal plates very large, nearly or quite as broad as long; second, third, and fourth vertebrae longer than broad; humerals very large, their median suture at least two-thirds length of their suture with pectorals; head dark-spotted on a light background; no lateral keels; gular plates absent or vestigial.

*S. peltifer*: axillary and inguinal plates small, much longer than broad; second, third, and fourth vertebrae broader than long; humerals smaller, their median suture not more than one-half length of their suture with pectorals; head dark-striped on a light background; no lateral keels; gular plates paired, vestigial, much broader than long.

*S. minor*: axillary and inguinal plates smaller, much longer than broad; second, third, and fourth vertebrae broader than long; humerals smaller, their median suture not more than one-half length of their suture with pectorals; head dark-spotted on a light background; lateral keels present; gular plate single, of normal shape, about as broad as long.

In comparison it can be seen that in the six characters discussed, *S. carinatus* is unique in three, shares one with *S. minor* and two with *S. peltifer*. The latter is unique in one, and shares three with *S. minor*, which in turn is unique in one character. It is obvious that *S. peltifer* is apparently more closely related to *S. minor* than to *S. carinatus*.

*S. odoratus*, which belongs in another group, has two light lines on each side of the head, more than two chin barbels, very low marginals, and usually a large gular. Its variation is considerable throughout its range, but these characters appear to be relatively constant and indicate relatively little relationship with *S. peltifer*. Since it occurs in the same area as the latter species their relationship is probably not close; they no doubt represent two entirely different artenkreisen.

*Specimens examined*.—Comparative material available includes the following: *S. minor* (2): Baker County, Ga. (Baylor Univ. No. 2058); Mimsville, Baker County, Ga. (Baylor Univ. No. 2059). *S. carinatus* (25): Mississippi: Black River Crossing (near Vicksburg?) (U.S.N.M. nos. 59958-60). Louisiana: Hope Villa (= Bullion), Ascension Parish (U.S.N.M. nos. 64603-13); Mermentau, Acadia Parish (U.S.N.M. no. 100095); Mermentau River, opposite Mermentau, Jefferson Davis Parish (U.S.N.M. no. 100094). Texas: Black Lake (17 miles NNE. of Bryan) and Wickson Lake, Brazos County (TCWC, 3); Tom Bull, Harris County (TCWC, 1); Twin Lakes, Madison County (TCWC, 4); 3 miles east of Evergreen, San Jacinto County (TCWC, 1).